Pocket Notebook
PN 20-08-00 (1920-1923)

This notebook dates from August 1920 - May 1923. The pocket notebook contains notes by Thomas A. Edison relating to phonograph sales statistics, storage battery regeneration instructions, record formulas and production, starter battery experiments, asbestos, chemicals, rubber, and storage batteries. The notebook dates from August 1920 - May 1923.

PN-20-08-00

110,237

☆3346

EDIS 110237

Formula Book

~~6.9 Quarts Rosin liquid per 100 blanks.~~

~~Formula for dissolving wax off of plated Master~~
~~12 cc Gasolene~~
~~3 cc Glacial Acetic Acid~~
~~80 gasolene 20 acetic~~
~~100 milg wax dissolves in 15 cc of Solution. 45 cents gallon~~

~~A revolving brush is used with above solution, speed of brush Throws off the wax laden liquid.~~

Aug 1920 - Polishing Condensite record helps only a little to diminish surface sounds but it is fair
Use Chalk in Kerosene, Keep Chalk in suspension in a small Can provided with a

110,237

whirling paddle. then clean off the black muck by China Clay in suspension in another Can with revolving stirrer Use revolving brush 3 cycles a Cycle being over record and back –

The wear on a record is enormously diminished by giving it a film of Stearine. By disolving stearine in alcohol + cleaning the record a film is left + this raises first sign of wear from 80 times over to 1000 times over + if film is thicker to much over 1000,

Expt Longwell

We get 198 blanks Varnished 2 Coats both sides for One gallon of Varnish

Varnish Dept Aug 21 -
47 girls piecework make
135000 blanks per week
both sides 2 coats
Girls work approx 7½ to 8
hours day or total of 30 to
32 hours

1 Girl turns out about
200 one coat blanks per
hour or 100 2 coat, both
sides per hour
7 men do the handling
Kurtze estimates cost
4/10th of a cent for
Complete blank

Get formula

Old dark Ni Fe Cell flake
Brightened by boiling for
½ hour in 10% solution
of Sodium Bisulphate
Wash free of this salt in
1% Caustic Soda solution
dry in air

Old Formula

Nickel stuck in spots to a mould can generally be removed by immersing mould in a flat dish on hot plate in 20% Sulphuric

Sept 28-1921 we use 3/16 of 1% in Varnish

Battery Regeneration Dec 9/22

1st Soak cans one hour in Toluol or Kerosene

2 Drain cans free from solution

3 Pass cans thru fresh Toluol or Kerosene

4 Dip in 20% to 25% HCl for 10 minutes

5 scrub with acidulated water
6 Rinse in water
7 Dip in boiling 1/10th of 1% Alkali
8 Dry in air

To clean grid poles washers Etc
1 Boil in 10% $NaOH$ one hour
2 Dip in 20 @ 25% HCl for 10 minutes
3 } scrub with 1/10 of 1% acid
4 Rinse with water
5 Dip in boiling hot water having 1/10 of 1% $NaOH$
6 Dry in air

Victor Records ·090 thick
Edison " ·215

Not Formula

Master Moulds should never be polished so as to reduce in the slightest only cleaned, All polishing should be relegated to the female

Not F

Playing Time of Records

Edison	10"	4 min	39 sec
Victor	10"	2 "	52 "
Victor	12	4	10 "

Rosin fairly pliable at 125° Fahr begins to soften at 105° Fahr Melts 155 to 160° Fahr

Prewar sales of Pianos in US 300000 yearly

Not Ji

Taper on 40 ft funnel
½ Inch to foot
Flare 6.3" per ft actual
length 37' 8½" length of
flare 4 ft 7 ¾ inches
dia when flare removed
18 ¼"

Canvas of a section of Orange

Victors	404
Edison	83
Sonora	48
Columbia	25
Brunswick	19
Aeolian	18
Pathe	6
Amberola	1
all others	50

Asbestos
Tremolite [Italian] $CaMg(SiO_3)\ 4$

Serpentine Asbestos $H_2Mg3SiO_9$
Canadian

Blue Crocidolite $NaFe(SiO_3)_2$
$(Fe''SiO_3)_3$

Ford Starter Cell complete
Liquid in 4 lbs Dry 2.8

For starter battery

Width of Nickel strip 1 3/16
Length 3 5/8 Thickness
1 3/4/1000

Asbestos 25/16 wide
3" 3/4 long About 15/1000 Thick

At first Asbestos slips faced with NiOH on one side + Fe on the other side are after drying put between heavy flat ground surfaces + subjected in hydraulic press to 10,000 lbs pressure per square inch. Then assembled into an Element, with bolts + 10 000 lbs sqr inch put on then pressure slacked to 5000 sqr in + nuts Tightened + Element is Ready to put in Cell -

33 days 170 @ 180 deg
purified asbestos Canada
300 CC Contains
348 mlg of Si Al or Fe

NickelHydrox 1 1/8 wide
3" 9/16 Thick. about 25/1000
Weight 3-2

Fe Same as Nickel weight same
thick 18/1000

12000 lbs pressure dry per inch
NiOH. area s. - get this correct.

80 sheets asbestos to 81 -

Average depth of Element
4"
Diameter rods 3/8 Cold rolled

Weight of NiOH.	205 grms
" Fe	205
" Sheet Nickel	3 oz
" Asbestos	3 oz
" both top + bottom plates	215 grm
" Rods + nuts	215 "

300 CC Electrolyte per cell ①
One cell complete weight
with Electrolyt + outside fittings 4 lbs

Weight dry about 2.8 lbs.

At normal 6 amp charge +
discharge 32 amp to a Volt
128.5 V average dischg Voltage

6 times normal or 27 amp
hours average Voltage 1.24 V
This is 36. + is 6 times higher
rate than A4

Even at 8 times normal of
50 amp discharge rate
The average V is 1.23.

All the above are charged normal
6 amp.

Out X

Parcell post.		1st Zone up to 50 miles	150 to 300
Local. 1 lb	5 cents	5	6
2&3	6	6	8
4&5	7	7	10
6.7	8	8	12
8.9	9	9	14
10.11	10	10	16
12.13	11	11	18
14.15	12	12	20
16.17	13	Same as local	22
18.19	14		24
20.21	15		26
22.23	16		28
24.25	17		30
26.27	18		32
28.29	19		34

Monel metal at 168° Fahr in our Reg NiSO4 solution with Acetic is not appreciably attacked after 360 hours

Our Copper Sol 25% acid after 403 hours lost 7.9%
after 739 hours 10.48%

Late Ni Sol 1930 hours loss 0.7% Copper sol lost 20% 160 Fahr

Porosity creating substances
to use in Asbestos for Ford
starter.

Salicylic Acid at 25°C. 100 H_2O
dissolves 0.22. K Salt V Sol fibrous

Phthalic Acid 0.54 in 100 H_2O
long thick fibres. K Salt V Sol

Sebacic Acid 0.02 at 25° C
in 100 aq. K Salt Sol

Santonic Acid Sol 5000 pts
water K Salt Sol

Cresolinic Acid M P ortho
Insol. K Salts sol.

Naphthionic Acid - [Naphthylamin
Sulphonic Acid] Sol 4000
pts water needles when Cryst
from hot water
Beta Acid Sol 25000 water

Meta-Ortho or Para
Nitrobenzoic acid insol water

Isophtalic acid ″
Sulphanilic acid Slightly Sol

Nitrocelulose silk insol aq
Very soluable in KOH 21%

Cartersville Potash Slate.
ground 10 mesh ignited 1750
Fahr, ground porcelain
Mill then floated
200 grms slate 200 grms
Caustic Lime. 2400 grms
water but some of this goes
is in Combination with the
lime Kept constantly at
about 180° Fahr for 3d days
180.6 lbs K_2O in slate
Extracted 147.2 lbs K_2O
or 81% - floated stuff not
fine enough

Extraction with 1600 water
69%
with 3200 water 78.13%
with 4000 " 72%
Whole trouble is want of fineness

Indianapolis Selling statistics under our supervision

Houses visited	2918	
Homes without Phonos	1193	40%
" with "	1725	59%

Victors	748	43%
Columbia	209	12.1
Edison	183	10.6
Brunswick	126	7.3
Pathe	70	
Vocalion	54	
Sonora	51	
Vitanola	40	
Cheney	38	
Silvertone	20	
Other makes	191	

[illegible]

Sales Expenses Musical Phono division

1915	13.5% of sales Mac+Rec
1916	15.3
1917	19.1
1918	14.1
1919	12:3
1920	17.9
1921	Seven months 28.3
1922	

SPODUMENE

Hardness 6.5 @ 7

Spec Grav 3.1

before blow pipe melts to glass

Silica	65 60
Alumina	27 29
Lithia	3.8

pure Spod should be 6.14 Li_2O

Dec 31 - In bank	1.056 000
Our bank loans	2 886 000
Our Vendors notes	477 000
Past due accts	40 000

Net Liabilities Exceed Cash
2.367 000

Overorders of Jobbers

La	34
Ga	33
Pittsbg	26
Syracuse	22
Indiana	22
Chicago	21
Cincinnati	17
Nebraska	11
Virginia	11
St Louis	11
Iowa	10
Kansas C	6
Texas	6
Minn	5
Cleveland	1
Mass	1
Williamsport	1
Mich	0
Albany	0

Swanzy Talus

Bags of Earth just as it is on top taken all over property side hill - All dumped together & probably fair sample of whole top dirt

Talus Screened

I Have this in other Book

Chlorinated Rubber

Benzine [Pet]	100 cc dis	16 pts
Kerosene	"	16 "
Gasolene	"	18

Price Benzine	21½	Cents gal
Kerosene	10½	"
Gasolene	24	"

Gasolene at 100° Fahr dis 26 grams

Dont forget Clearing House National & Interstate for Surplus Records & Machines Operated from Orange

Sol in 100 water

Barium Hydrox		5.5 Cold	182 Hot
Strontium	"	0.9 "	47 "
Lithium	"	12.	17 "

$LiOH$ not so sol in 21% KOH.

Wash away edge 10 girls
27000 1 shift -
average records per hour
per girl is 323

Perry Inspector wants more
salary = good worker but no
Executive - 35 1st raise -
Cant fit him at present.

Report on 218 Chicago & Milwaukee Dealers, showing relative importance of Nine groups in their buying of records during Nov & Dec.
2 of best months in the year

			Purchases	
A	18	Dealers	$ 21.880 -	455 to $5.440
B	27	"	8.133	223 to $390
C	28	"	3.651	101 to 165
D	33	"	2 585	59 to 98
E	19		873	39 to 49
F	20		695	30 to 39
G	32		770	20 to 29
H	24		388	10 to 19
I	17		138	10 —

8% buy 55% of records
21% of dealers buy 76% of the Rec

70% of the dealers buy only
15% of the records

Black sticks for coating
Edges of records Co.
Waterproof & shine
Records

100	Black Ozokerite
2	Beeswax
1	Stearic acid
1	Lampblack

Later & better formula is

Now in use get
from Hart

Black Label record stock
only in hands of dealers &
Jobbers Jany 22 1923

According to statements of 29
Jobbers they hold an inventory
of $2,569 708 - Value

According to black label
inventory of 2.043 dealers
they hold according to present
Cost Value $. 1.595 098

Currys estimate of the
remaining 2000 dealer
they probably have an
inventory of $1.496 782

Dealers Total $3,205,950
reducing dealers differential
by 11 2/3% The Total
Dealers is $2.831.902
Jobbers 2.569.610
Grand Total 5401 610
about 7.716 000 records

Newsales Cost Salaries & Exp

5 Months July 1922 to Nov
1922 inclusive

Lindsey	$8.89
Holden	3.00
Riley	2.44
Kinney	5.00
Laible	.90
Giblin	3.00
Moffat	4.20
Pulster Srs	4.30
Cole	6.62
Glaser	4.30
Laffrey	49
Davisson	10.70
Mahaffy	1.69
McClellan	2.17
Stringfellow	.68

Mugan
Coleman
Barnes } 00

Not counted

A4 Equiv

Total Sales
5 Months
24039 Cells
Cost in
Salaries & Exps
$42750

1.77 per cell

~~Send for samples of Salt~~
~~from all over US get~~
~~addresses from Geological Survey~~
~~find the one giving Lithium~~
~~Leaves 2½ lbs Li_2O per~~
~~ton — then see about~~
~~Mother liquid which~~
~~will contain most of~~
~~Li_2O Chloride~~

Rosen I Feby 1 We pay
for 280 lbs of Rosin
itself $6.15 —
Total that figured in
this — 2.65 cents lb

Water from quaker
Wells Feby 2:

No 1	56	Cistern 58° F.
2	58	Return from Ovic
4	52	72
5	57 —	

Feby 1/23

D L Asher - couldnt organize the Central but I think I could manage one when time comes.

We sold Jobbers of Phonos Amberola & Disc in 1922 $62.336 000

Scratch is high - Eliminate by interference of 2 resonators & a number of these

Amberola Machine

Motor	Material	Labor
Motor	161	1.50
Repdcr	147	86
Horn	34	16

Assemble Machine
Cabinet & retainer

	Material	Labor
	.36	31
Cabinet Hardware	16	03
Packing	24	11
Cabinet	4.46.	0
Shook	60	0
	9.24	298

Both 12.22 dead cost

Diamond Dealers
L M Van Moppes
33 Holborn Viaduct
St Andrews House
London

Ehrman & Bahlsen
London

This applies on sales where all Cash is secured where terms Comprehend payment in 90 days or sale is made on the installment basis a deduction of $3. is made to Cover Collections

Salesmen will consider the above Stipulated payment as the minimum applying on each type of Phono

As soon as the amount paid in on a sale Equals or Exceeds the sum of the minimum 3 payments Salesmans Com will be due

Where sales of new phonos are for all Cash salesmen will receive their regular Com plus a bonus of $3. per phono

The live salesman while not personally responsible for Collection will nevertheless Keep posted as to the way Customers meet payments

Barley Schedule Nov 14/ 1922

Terms Orange Central

	Price	Down	Initial	Com
Chip upright	295—	25—	11.25	53
" Consol	295	25	11.25—	53
Wm & M upright	295	25—	11.25—	53
" Console	325—	31	12.25—	58
Louis XIV uprt	295	25—	11.25—	53
Sheraton inlay U	350	50	12.50	63
Italian Umbrian C	350	50	12.50	63
XVIII Cent Adam C	375—	57	13.25—	68
Sheraton Uprt	200	14	7.75—	35—
Baby Console	175—	19	6.60	30
Jacobean Uprt	245—	23	9.25—	43
Hepplewhite	145—	13	5.59	24

a flat rate of 19% Com will be allowed salesmen on all sales of the following — to accrue on net amount of sale turned in in each Case

- Repossessed phono when sold
2nd hand Edison accepted in Trade
2nd " Talking "
Damaged or defective phonos, not [illegible]
Records & attachments

~~Try Ammonium Salts to dissolve out Sulphate Calcium from Nickel tubes also Mix of Na K & other hyposulphites alone or mixed with Ammonium Salts -~~

~~Try Salicylic acid & organic acids - Pos~~

~~Reduce to grains then Boil in Hyposulfite Na~~

~~Try very strong Hypo with unreduced - also saturated Cold but kept hot.~~

NaCl Sat does it OK

Action of Salicylic Acid on Canadian Asbestos

2 grams Salicylic to Liter

Took out		
	SiO_2	.016 mlg
	Iron	.029 "
	Lime	.086 "
	MgO	.132 "

for one pound

SiO_2	.800 mlg
Iron + Al	1.450 "
Lime	4.300 "
MgO	6.600 "
Total	13.150 "

or 2.9% Room Temp

Turns red from formation iron salt, only acted on few hours -

Expmt shows it colors within ½ hour on hot plate

~~Test Rosin for % of Turpentine powder fine & test for oxidation Experiment in varying Qualities to get a test~~

~~See if Linseed oil Sol in Alcohol - if so add 1% to I Rosin & test.~~

Asbestos acted on with 33% KOH. no Li hot plate

14 days removed ~~SiO2 .355 mg~~

~~Fe Al .095 "~~

~~Lime .090 "~~

~~MgO Small "~~

days ~~SiO2 .213 mil g~~

~~Fe Al 0 "~~

~~Lime 0 "~~

~~MgO "~~

	Mil g SiO2	Fe Al	CaO	MgO
14 days -	.355	095	090	
32 "	.213	014	Trace	Trace
45 "	.093	019	Trace	
62	059	019	Trace	
one more 76 days	720	147	90	

so far 62 hours get out 6.268% of the amount of dry asbestos

After 33% KOH asbestos is washed & dried see if further treatment with Salicylic acid will remove 2.9% more.

With the 33% KOH 6.26%
and Salicylic acid 2.9
about 9% should give with coarse fibre all porosity needed

Took an Asbestos leaf about size of Reg batting slip dipped it in Conc $NaCl$ then put between blotting paper (filter) pressed it dried it & then dissolved all $NaCl$ out by washing it — The precipitated by Nitrate Silver — Schwanke says got out 253 Milg $NaCl$ equivalent

---

New Wax for putting on Edge of Records. This is an improvement will stand in water ½ hour before showing slightest turn up of the Edge & not serious for 1½ to 3 hours

---

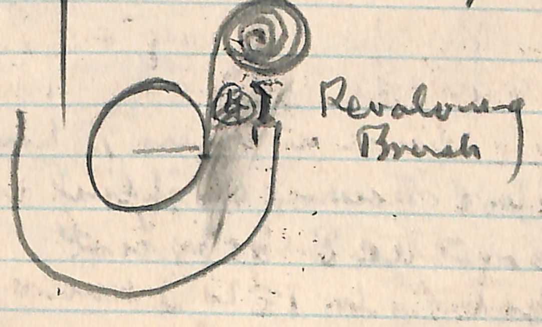
Feby 13 1923

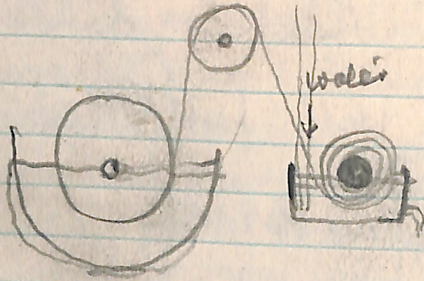
95 parts black Ozokerite
7 " Yellow soft Beeswax
3 " Gas Black
3 cc Nujol (parafine oil)

Melted - pours into small candle mould to form sticks - Very shiny surface on edge of Record —

Hanley

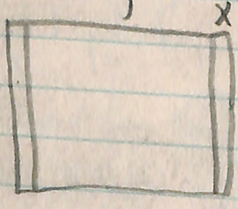
Feby 13/23




water
outlet

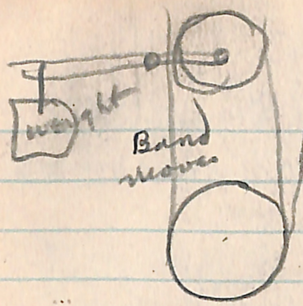
Think drum would work if wholly immersed

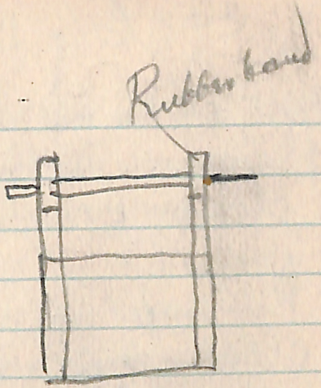
Why not wash each roll after its made by soaking it in a vat with fresh water running

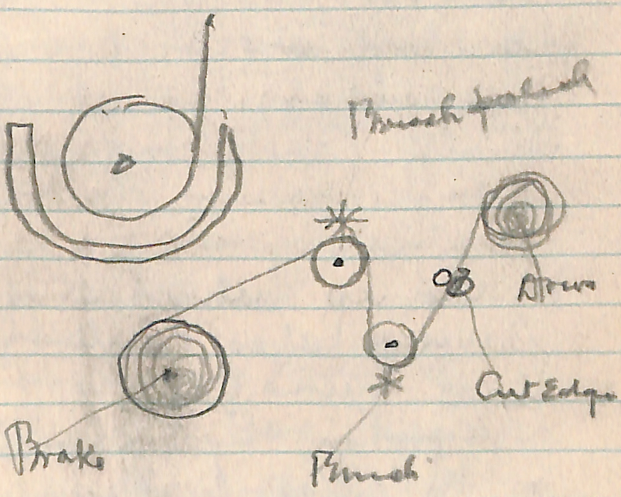


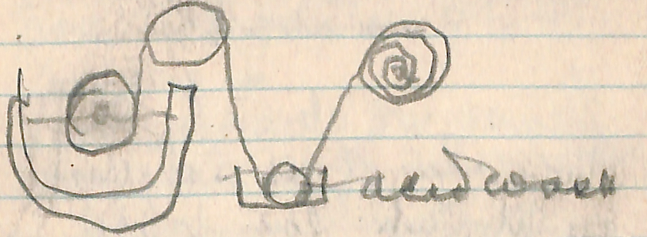
Why not paint Edge every 3 or 4 hours prevent building up-

$CuSO_4$ 5 aq Sol 31·6 at 32°F
Cold and 203 at 212° Fah


weight
Band moves


Rubber band


Brush polish
Drum
Cut Edge
Brake
Brush



Feby 16/23

Just wind up at bath as now
Remove Roll to an acid wash
Clean - Wash, dry

Remove roll after day to
Cleaner by rubbing brushes
+ Trimming Cutter +
Clean both sides with fine
Non aluminum powder any
Quantity Clean + Store

Make up Luhr's list of
Savings also Paulson
list & send Copy to
Egerton + Roscoe Smith
+ McChesney. [illegible]

Since we already have
the sales of all dealers
in Manhattan jobber,
Just see if we have them
from all jobbers if not
get them - no use working
in the dark

Put new A man in 24 as an
Inspector
Raise Neill to 60 + keep new
man as Understudy but
let him do 50 records to
Check Neill, for few days
+ if his judgement OK
Test all records going
out on demonstration
by drop test

Can drop test $\frac{1}{4}$
about 600 records
daily 1 side or
300 Complete. 7 to 8
boxes -

Also to have charge
of Cleaning returned
demonstration Records
+ keep all accounts

Start test of new waxed Record
Edge in Water_

Mch 8/23 Thursd Afternoon

Blue asbestos can be used
with discs instead of Cotton
or woodflour to obtain
a disc not affected by
moisture & swell -
It Can be got fine by
beating - or Rosin bear
process -
But Expensive

Try passing thin
raw wood flour between
differential Rolls high
pressure also smooth
rolls same speed see
if flattens fibers

Get some Dry guayule
Rubber also!
Pontianac & try
sheeting with ZnO &
making Amberola
ditto Chlorinate

To stop Cracks: Cool to 250° Fahr. Let pressure off momentarily – ~~then~~ to allow Varnish + blank to Contract then put back pressure to full + finish Cooling –

Try using double amount of 6/9+ perhaps Para to Condense + finish in 3 minutes instead of 9+ gives 50% Well for Moulding tests –

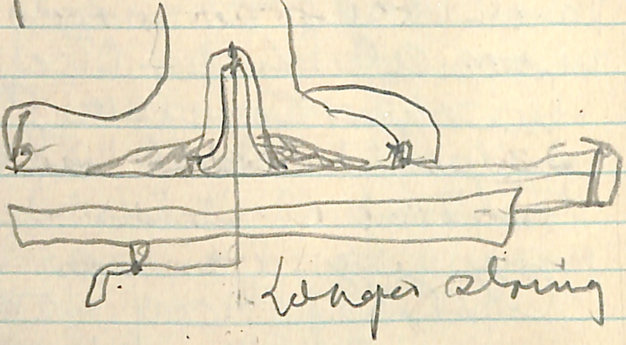
Make some loading Varnish up by using more alcohol + the ~~thickner to save Resin + stand Well under tests –~~

CRACKS May Come ~~from Edging too fast if Edges soft + fin requires large pressure or Chatter takes place – if the Cracks are radial + close to Edge –~~

~~Inspect 1000 before Edging – then edge the OKs –~~

Also May not be screwed up tight + tool tends to edge + thus Cracks Var

Reproducer



Auto Machine handle

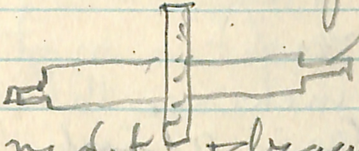
Motor frame & complete
it auto like Varnishing
Machine -

Our own foundry
Moulding Machine

Auto Gear Cutter
Revolving holder
having Mandrels

Auto for frame holding
gears!

See if Watch people
haunt Auto Machine
polish Bearings



buy right drawings

See if anything new in
Acme Automatics -

Auto Machine
grind rough Castings

plate Repdr Cup
and stem if practical

Increase S Bat

Rolling Mill —

Auto Machine
finish terminal stems
of battery - do our own
drop forging

As weight is not apprec
Can increase thickness
of can stock

go over chem Wks +
make cheapening
changes

Possibly Clarke
could regenerate
4 [illegible] cut in
strips 1/16 or 1/8
so solution could
get at Ni layers

Take up & finish way
to regenerate the
sludge Cu Ni & Fe
from solution in
separating Flake

Ask Mambert to get
his data by man
hours
Mill
Construction
+ Sales
dot weekly
This is best check
Ditto Supplies

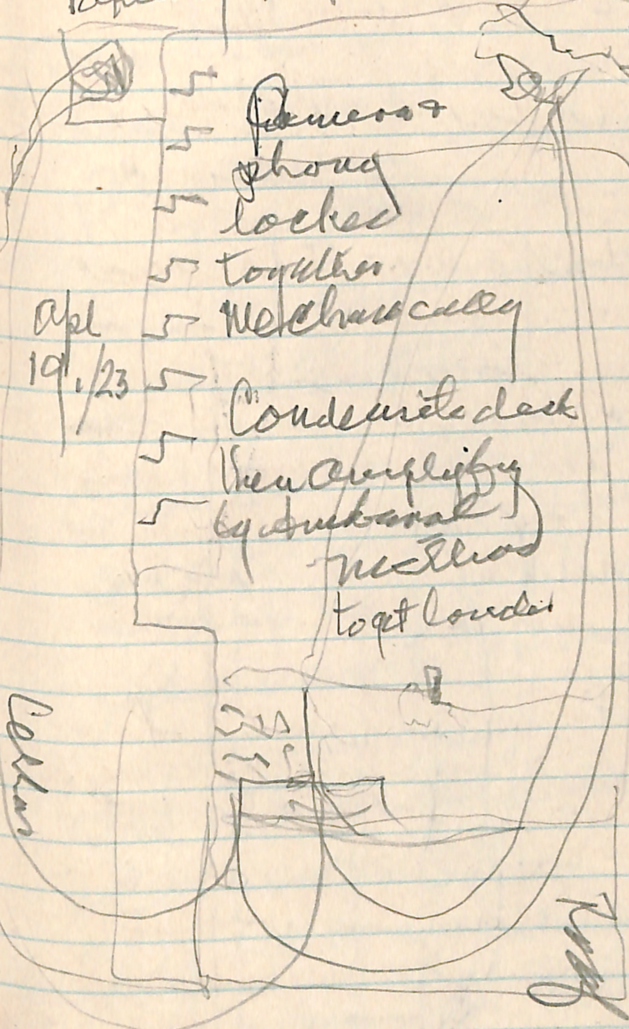
Ditto Phono works

~~get 2 more Auto~~
~~Machine designers~~

~~It is possible that~~
~~our Chino varies in~~
~~the Resin Content,~~
~~The excess Resin make~~
~~surface wear less~~
~~Try some expts on~~
~~making Resinate Lead~~
~~Schmerke try~~

Smoke fuse Lalus
find lowest Melting
point Combn with
iron then pour
slag in water
& leach to get rid
of grinding

Movie Opera 125 ft Horn
Taking 125 ft -



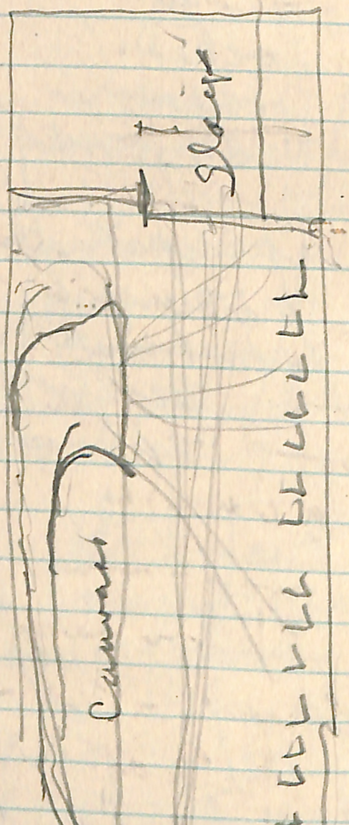
Camera &
phone
locked
together
Mechanically

Apl
19/23

Condense to disk
then amplify
by Hubbard
method
to get louder

Cellar

Horn can be 3 ft at apendix big flare coming



Or use green before

Lowering in

Line of Expts dipping
new tubes in Conc +
less $NiSO_4$ - acetate
Ni + then soak out
in 3 + 5% KOH -
this should make
fine Contacts -

Also take old tubes
soak alkali free
+ dip in Conc K_2SO_4
+ do same thing

Got a horn played NY
+ Columbus St -
NY full of interference
Columbus far better
no interference but
players + leader NG

A Series of Experiments
should be made with
long tubes with varying
amounts of Chloride
of K ditto LiCl,
to determine tolerance
of Chlorides - A small
amount might be an
actual advantage by
Alternate precipitation
& Combn of Ni from
NiCl to improve the
recombination —
should KCl do no harm
& be improvement we
Could drop German
KOH & use Solvay
at big gain

See Apparatus suspend
A 4 Etc like in Ford
starter —

Try in Lab gal reg
KOH battery sol no di
closed in bottle for
settling out Fe_2O_3
Also gal with 1/8"
Vent
Also gal with
Vent the KOH being
peroxidized by H_2O_2
to see if greater
amount comes down
or is hastened —

~~See Egerton & get saving in Money by moving the Flake sheet making to Troy on basis of $20. year per K W hour~~

Try several tubes put in nickel bath & plate Ni on them. filled with mix- then remove & put in 3½% KOH ~~then~~ till Sulfate out then test for Life & Capacity

Also Iron pockets

Dip at washing out the $NiSO_4$ before put in 3½% KOH.

⊘

In duplicating from Condensite disk to amplify we should probably use 100 thread on Duplicate for loudness & also Reproducer with Diaphragm say 50% more diameter with resilient spring instead Cond & frizz Edges.

⊗ See Egerton about getting a research man for battery

⊗

See if any of the Organic acids will brighten flake. Especially Salicylic.

Blue asbestos ground through 50 mesh & then beaten to fine pulp if dont work try acid on it — Firestone for tires — ⊗

Make putty & mould see how it works ⊗

Make Reg Mix with increasing rosin & lessened pressures see how far can go

~~[illegible]~~

Batty ⊗

Reg Mix. mix 5 & 10% Carb soda ground fine say 150 mesh with grain & then make into tubes soak out & then get capacity & life test in tubes — ⊗

Think a Combination Could be made with B5 — Linseed Oil highly oxydzd & Rosin — try all proportions at [illegible].

April 21 / 28

If a Ford Cell was
assembled without
any Fe or Ni hy
+ strong Ni Nitrate
(leave out Fe —
It would deposit
Ni hydrox by action
on Ni sheets —

Dip old tubes in Conc
NiCl. dry then put in
Soda & should swell
much

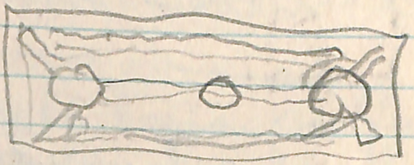
Dip in Conc BiCarb Soda
Then treat after dry with
H_2SO_4 — 5 to 10%
should make heavy
gas pressure

In our territories
Tone test a whole town
3 to 4 days in Churches
+ fraternities etc
Show Victor & E. —
don't attack Vic
Good owner, so —
Everybody in the town
included | invited
Farmers — knows about it

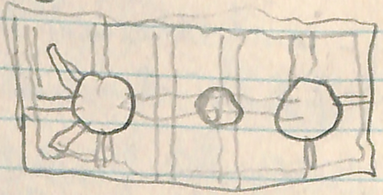
In duplicating Louder
dance records
Try — unfettered Edge
on Repdcr diaphm +
Spring. to prevent
blasting — see
louder
magnified

Get up a permanent heading
showing large Orchestra
as heading for a
permanent advertisement
in place of Victors
Artist advts -

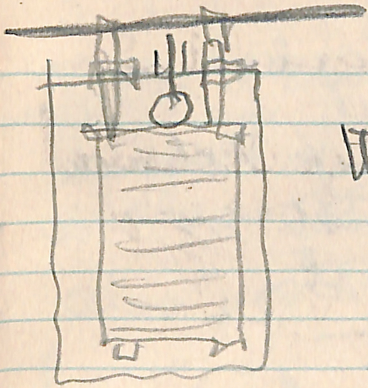
Patent



also

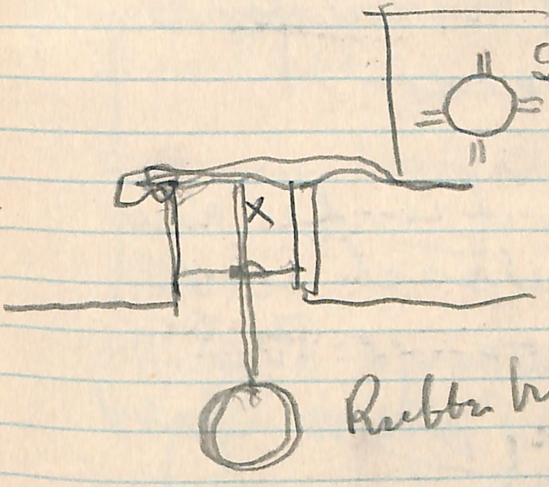


+ Various others



put
1st pressing
then assembly
+ Repress

Patent Suspension
Cell



ball x is indicating

Item -

Patent double box

Asbestos soaked in
Salts such as various
% of Carb Potash
Chl Potash or Na
for porosity -

Pat transferring
process -

See if under my
Contract with
Storage Bat
they own fan
starter,

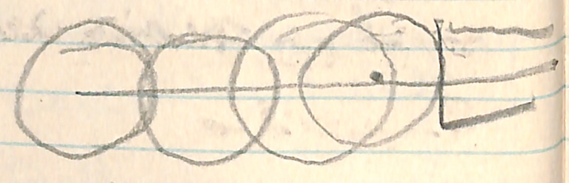
Test at big funnel
Value of each instrument
to spots of Equal Value
in straight line -

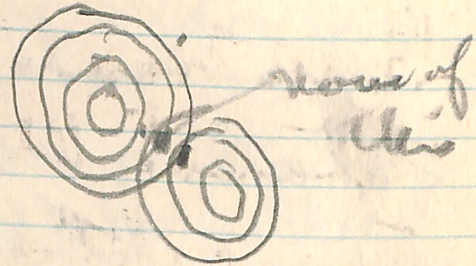
Also positions value

for instance Value 100-
90
Straight line -
80
70
for any constant 60
note - 50
40
30

If Harp is 100 at 25
Violin 100 at 5 } same
Vol -

When we use only a few instruments with big funnel put them if possible all in dead line -





While Hindermyer is singing Marked songs have been sung

one of his reg old songs in big funnel to see if it can be made better & then try with 1 more test voice position & also more sensitive Records

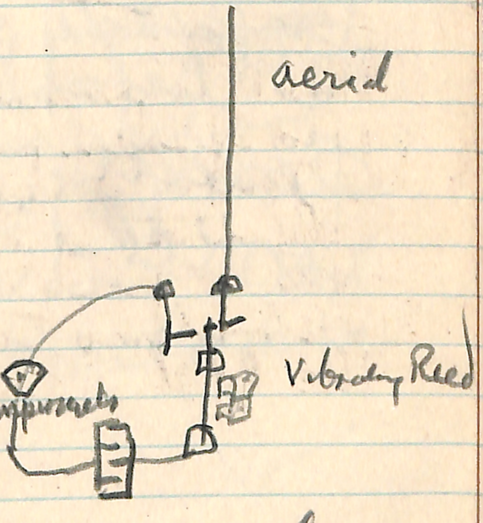
Run Experiments on Stearine Mix to see if can't get easier cutting wax

go back to time we
started. Steaming
or 3 mon— before
+ Curve of wear
with no steaming
right up to date
other Varnish vaults

I think it possible to
get rid of Iron pockets
by Moulding the Fe
right in the grid all at
once + preliminary
Electrolyses to Convert
the Fe

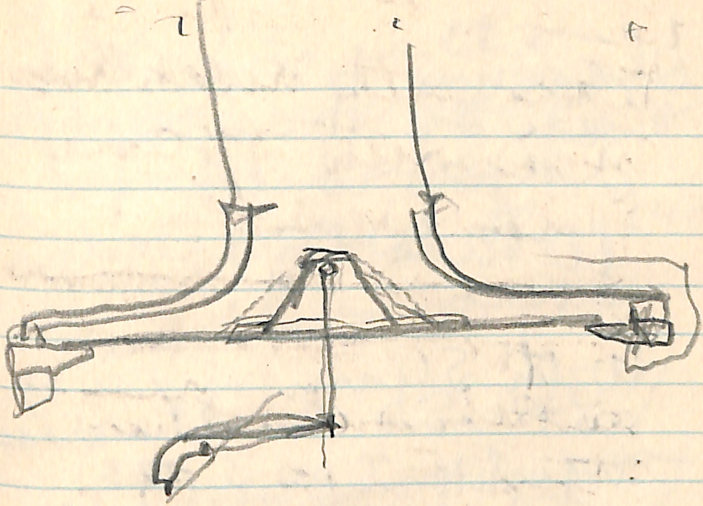
Also to load tubes
Auto & Commissary

See if Jobbers are
now going 40 & 45
& if Dealers all
notified —



This ought to work
see Hg Dropping Electrodes

Be sure to make up
Tubes with NaOH. mix
mixed with 10% Carb
Potash or Soda—
~~It would be preferred~~
~~to get a Salt that~~
Work out a test
try 5 10 20%
Carb Soda get
Capacity curves
& life test—
Possibly NaCl
or KCl—



Loud Speaker—
Broader foot—bigger
opening 2 3/4 to
3" dia | more
Weight - Sleeving
12" Record dont
Come too close to
Label.

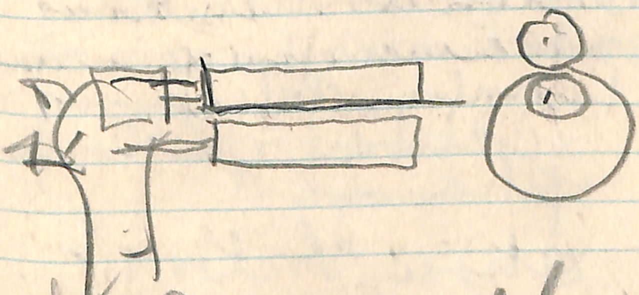
✓

Stearine possibly
Can be heavily
dipped with
White Ozocerite

With Stearin mix wax
on Record Could increase
weight 2 or 3 oz
& increase length
of Lever to get
more amplitude
Especially the Edge
of Idea that clamp
& spring used

Stearin is cheaper
than Stearic acid
(common kind) might
get good mix for
Ediphone Cylinder

Parafine is the
cheapest of all
wax. Have Hart
get 137 MP also 140
Parafin & dope
with 5 10 20%
of Everything in wax
on Redm Record



for Rolling out lap
on Rubber Chloride
for Amberola
Like Tin Smith Rolls

see if at Orange shop
the Vic owners having
our reproducers have
bought the record
they agreed to to
keep Reproducers

New Scheme

Train a number of
Lecturers to go about
Country delivering
Lectures on Sound
+ Phonograph
Show Victor + E
illustrating the 2
kinds of records
+ Reproducer play

Records have if possible
Stereoptican,
Map + sheet also
Models Etc /
Each man to
give 2 or more lectures
Each Town all
Churches / Catholic +
all Schools Fraternities
Clean up the town
before man leaves
$70. week + travelling
Exp. 100 000 spent
this way cannot be
beat
mostly farmers.

New scheme

Use of oxides, MgO
Al_2O_3 — & an acid
Resin — Mixed dry
Very fine — Moulded
without heat, then
Moulded under
heat to cause Combn
of the Oxide with
the acid — possibly
Styrax used & Condensite
Tar — Linseed oil
Dry Slaked Lime
as Alkali —

Even Stearine fibre
& Chalk. No Condensite

It is possible that a disk
made of hard porous
fine powder hard pressed
& then ~~baked~~ pressed
with Masses & then
treated with Stearin
might wear ok —
fibre could be used
Lint Etc
Soaking in Melted
Stearin would
waterproof it.
so it wouldn't
disintegrate

Clay Semi dry with 50% chalk but
hard & slightly plastic
pressed cold with
pressure — then baked

to a point where acts
no longer affected by
water then ~~soak~~
cleaning or [illegible]
[illegible] - fused
lump & dehydrate

~~Write Leybolds~~
~~prices for prisms~~
~~at Troy~~

A Pos Charge the
molecules rotate
one way Neg
chg rotate other

Always in Currents
this would account
for attraction &
Repulsion of
Opp chges -

P & N means change
of direction of
1 thing -

Right & left handed
Electrification
& not 2 kinds
of Electricity

Be sure have Payne
Mix in water in which
Nickel mixes powered
3 to 5% either Carbonate
soda or K or NaCl
or KCl. so mix itself
will be porous –

As an old tube cut in
two showed 80% loss
of Contact it may be
due somewhat to
swelling + breaking
Contact with flake
If so putting in
5 @ 10% Na_2CO_3
or NaCl in dry
mix + then
making tubes

will on percolating
out in $3\frac{1}{2}$% NaOH
solution give
enough porosity to
stop swelling +
better try 5 10 20
40% –

Tubes made from
triple Crystalized
Sulphate Ni
free from iron
to start with

Determine Iron in
our $Ni(OH)_2$

see if that Very light
wood Balsa Can't
be used for Diaphragm
alone with Spring
also instead cork
on Repeaters—

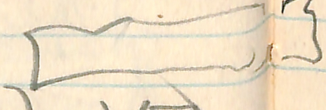
It needs a very
sensitive Recording
for singing—1 or
more—instruments
Can these be
moved at a large
distance to
prevent jump
outs—

Dont forget Common
Resin with
Oleanin—

~~ask Whalen if~~
~~all new Phonos~~
~~got hard felts~~
~~these adjustment~~
~~also about new~~
~~setting Repeaters~~
~~would be Great~~

As a Novelty
Dup 200 3 times
backward —
Reversing direction
to record it
backward &
then Dup it
Reg — so can
make discs —

Continuous Rolling
Cement in



moved used for
disc Expt 15

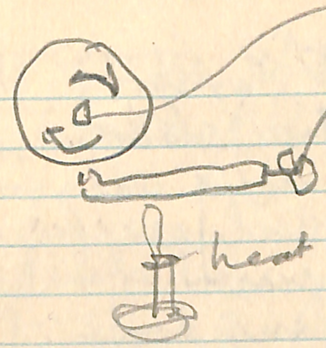
See how it acts
in Small Porcelain
Ball mill grind
with Jars Etc

Static Elec is a
phenomenon of
Compounds, —
not charge pass
a perfect Vac
Light does —

The reason a smooth rotating ring contact gives without any battery a rather loud sound with audiphone is that the wheel keeps comparatively cool while contact being a point gets hot & gives a Thermo —

Try with water cooled wheel —

Antimony & Bismuth point of also Se Te CuS Etc



May depend on which metal etc is point & which wheel

Find out what the Victor does with unsaleable record with dealer

Peters — report on all dealers in each town

Dunnar O'Mrain
among the jobbers
Lubricating oils from
Penna Oil preferable
on account of high
Paraffine base.

Important

Figure out costs
of single faced records,
printing 2 together
think can sell for
60c & make
more than now
& abandon double
face

~~Ask Jim if he sent~~
~~Tuttleman the check~~

~~Patent use of paper~~
~~between 2 blanks~~
~~& pressing single~~
~~face records~~

~~Figure out finance~~
~~of single faced~~
~~Records to get~~
~~list price~~

~~Payne dont forget to~~
~~get porosity in Ni OH itself~~
~~by conc Na_2CO_3 in forming~~

get address of all
Morristown people
who had Rapidas

see Administration
May 1923
Page 563 & 4

Thomas W Berger
Manager Sales Appliance
Dept Phila Electric
Co — May be good
man for us —

Findout What is
Wheatland Exp

May 15 1923

The only way I can see
after our experiments today to
get rid of beats with the
4 Violins playing in
Unison is to

Take 1 of Each kind of
instrument used in
a large Symphony
Orch. making a
small orch of 6 to 8
all diferant,

Provide Each player with
a recording machine &
seperate funnel — Connect
all the platters mechanicaly
together & use 1 governor
to get Constant speed
then have them arranged
so the sounds of Each
played will not record

in his neighbors funnel
by spreading apart
& partitions all players
to see the leader so he
Can Conduct in the
usual manner,

Have a locating place
in the wax of each
then make master
Jumbo working mold of each
man +

Now make a locking
together of say 75
Reproducing machines
& put say 40
Violin Records exact
dups then various
numbers of the other
instrument record

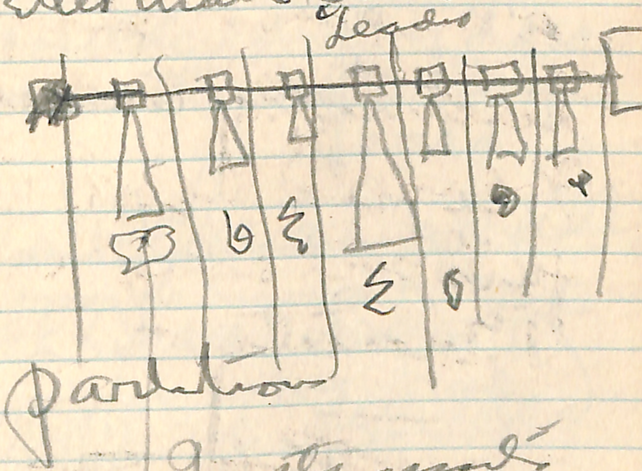
as is usual & the
whole of the reproduced
records to record
in the big funnel
& get a grand
Compound Master
from which commercial
records can be
obtained practically
perfect free of all
the troubles arising
from 75 men not
playing to Pitch

The Cost being only
7 or 8 instead
of 75 players

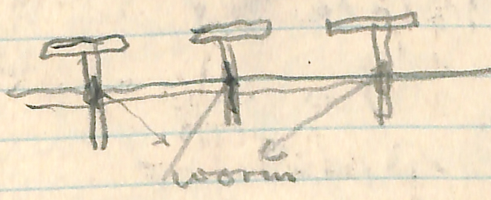
would be smaller
& many rehearsals
could be made &
Each could be
a superior player
& actually believes
& could beat the
full orchestra in
Beauty –

~~possibly by using~~
~~& men can~~
Handy look
this up for
patents –

Think 6" or 5"
Cylinder lends itself
to Connecting together
better than Discs



Instruments
Modify Volume by
funnels & Recorders



this is also good
& saves time

Try Monday

~~8 Violinist if possible~~
~~get far more sensitive~~
~~Recorder -~~

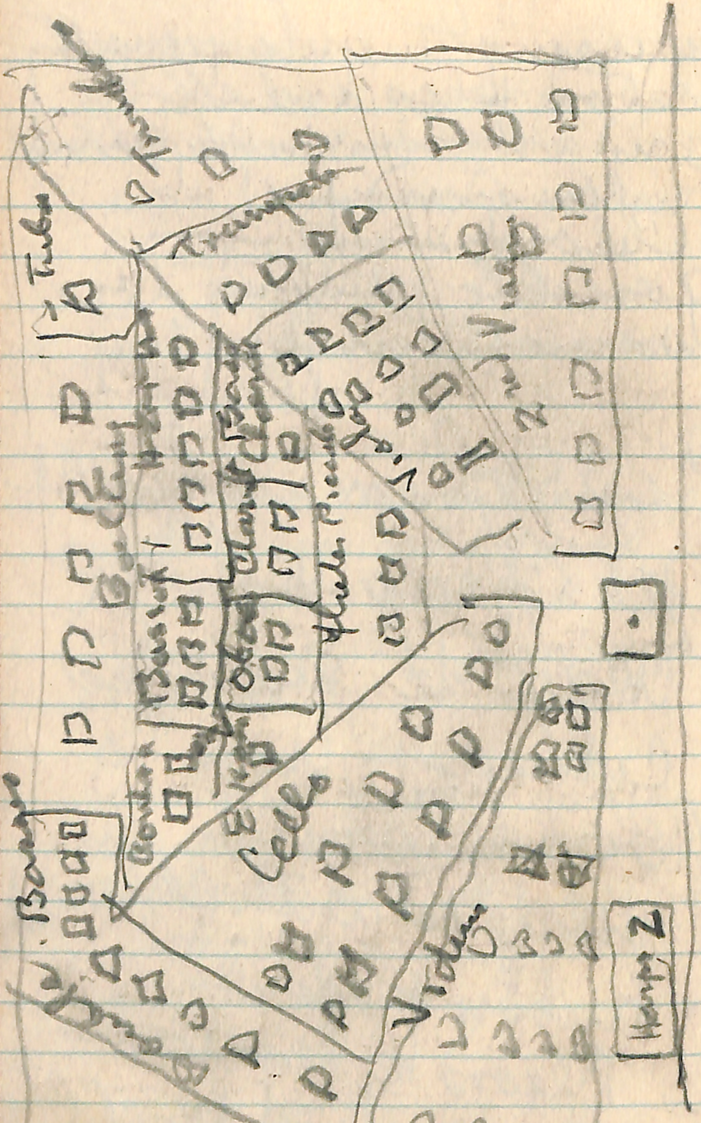
Test Old Key horn on
hand

~~4 Violins Each tuned more &~~
~~more sharper but not much~~
~~1 to make 1 sec next 2~~
~~next 3 next 4 - & see how it~~
~~sounds~~

see if we have a Tuning
Whistle or can buy one
& have 2 Violins tuned
Exactly

By using Guayule possibly
Acetone takes out all the
resin & leaves highly porous
Rubber good for
Chlorinating —
possible Jelutong does
same thing - try -

Best Scheme of all
Get Cheap High MP
Wax etc moulded
cylinders - how to
size & Varnish
surface with chlorinated
Rubber & Mould
Record by Reg Aurband
process - Rubber Cl
Explan too damp



May 22/23

Also press the cylinder
warm in polished
Mould to size but at
low temp just so
will Contract & be
removable then when
Varnish surface
with Chlorined Rubber
thoroughly dry + print
1/1000 thick will be
enough + thus we
save immensely on
Chlorined Rubber

Try China Clay & wax
(paraffin) for pressing

See L Oths experiments on
Solvents for Chlorined
Rubber - Solvent must
not dissolve cylinder
Binder

Must be dried cold in
Vacuum to stop water
depositing from
atmosphere — possibly
a little Napthalene
should be in Varnish
to get prints at low
temp —

~~Play Carl Flesch~~
~~Ave Maria~~
~~Kathleen Mavourneen~~
~~I'll take you home~~
~~again Instrumental~~
~~all these have long~~
~~bow tunes on instrument~~
~~On the 2 locked~~
~~phonos~~

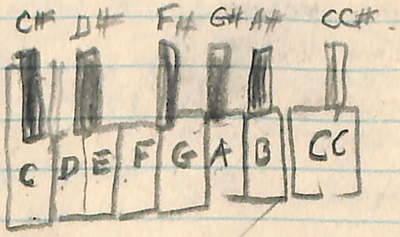
See Simpson book
on log mechanical
movements for
Locking phonos
together —

possibly a cylinder
of tissue paper
in layers or blotting
paper soaked in a
Paraffine base
compound, + bound +
Varnished with
Chlorinated Rubber
would do —

Double Vibrations Piano

Middle C	517 31	Vib second
C#	548.07	"
D	580.66	"
D#	615.18	"
E	651.76	
F	690.52	
F#	731.58	
G	775.08	
G#	821.17	
A	870 —	
A#	921.73	
B	976.54	

Octave CC 1034.61



Our American Symphony Orch making our records is

4 Violins
2 Second Violins
2 Violas
1 Cello
1 String Bass
1 Tuba
1 Flute
1 Piccolo
1 Oboe
2 Clarionetts
2 Cornets
2 French Horns
2 Trombone
1 Bassoon
Tympani's

Leader

~~Payne If our sheet~~
~~nickel in form [illegible]~~
~~was thinner it would~~
~~deform Easier~~
~~& If Annealed in Hydrogen~~
~~it would deform still~~
~~Easier but might not~~
~~make good contact at~~
~~Poles & Clamp at~~
~~Poles would harden it~~

Give Mo[redacted] Go

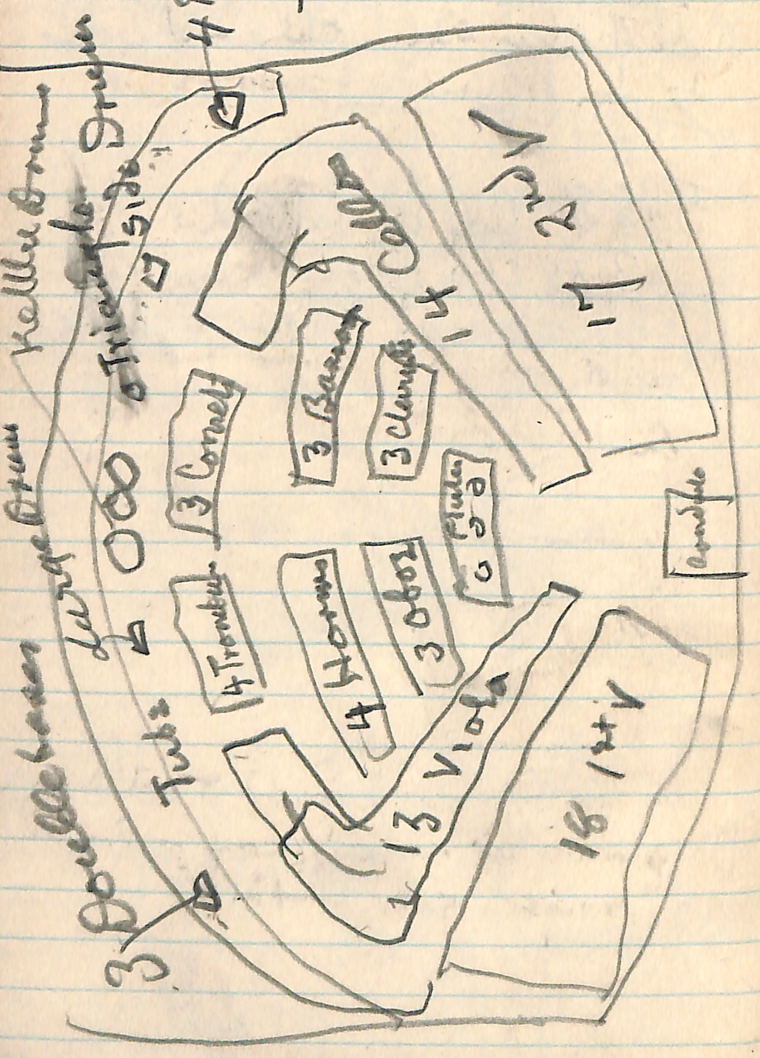
~~Moore to make~~
~~Reprints of~~
~~Fox Trots Georgette~~
~~& Warm Dup~~
~~loud~~

1 lb Crude Rubber
produces Chlorinated
Rubber that weighs
$2\frac{1}{2}$ lbs —

5.88 CCl_4 used
3.38 lbs lost

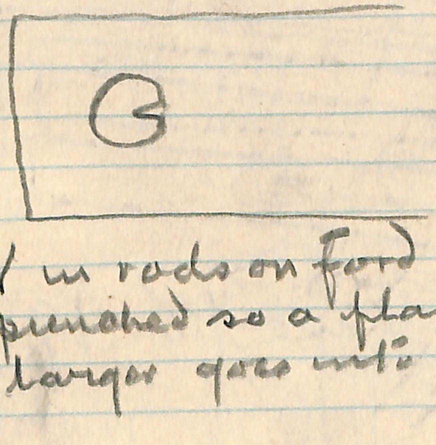
How about tetrachloride
loss

NY Philharmonic Orchestra
from Krehbiels Book


4 Double basses
Drums
Kettle Drums
Triangle & Side Drum
Large Drum
Tuba
3 Double basses
3 Cornets
4 Trombones
4 Horns
3 Bassoons
3 Clarinets
3 Oboes
Flutes
Cellos
14
2nd V
17
13 Violas
16 1st V
Conductor

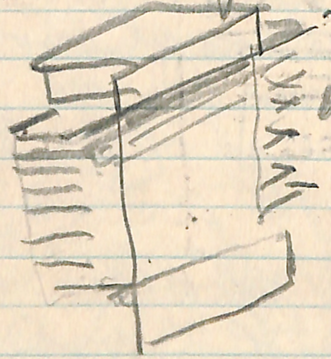
find out how long we have made photos with Limiting pen so that cant go above 80

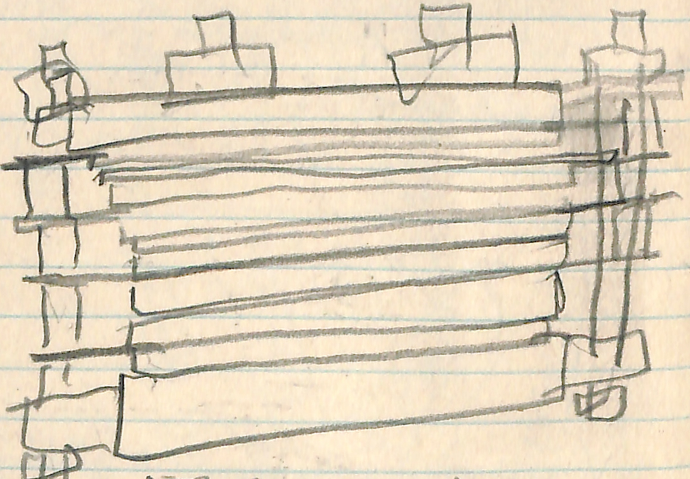
~~Fred Ott mix chalk with Balata + roll out in sheets for amberol -~~



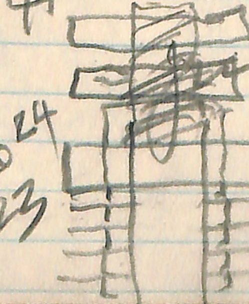
V in rods on ford + strip punched so a flap a little larger goes into V

Ford Starter
sheets lengthened & Contacts
made outward &
of asbestos
by 2 Rods
or otherwise



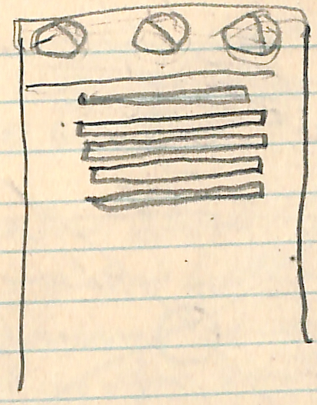


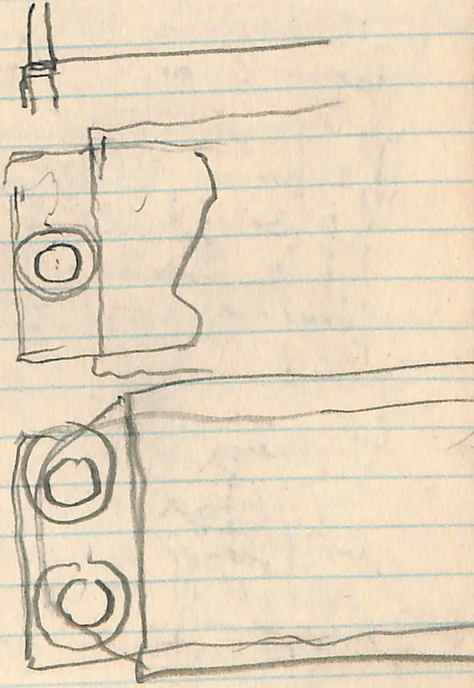
June 18 1923

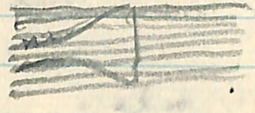


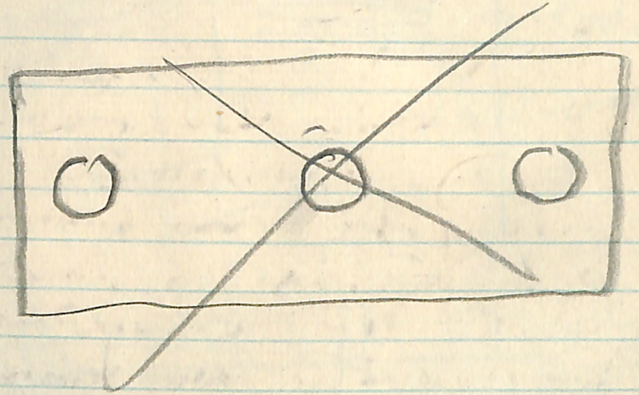
June 24
1923

this tightens
& contact
tightens
separate
washers









Make a Clockwork or
Motor Chalk Phone
for Radio Experts
Try Disc Motor 1st -

Funny Story - Negro girl
in Hospital having baby
Suffering - Asked Nurse
about it, Nurse said do
Matrimony - girl say
did you see dat black negro
around here lingering

for me-ni-walk if you do
Tell him dis engagement
done broken

Charles Story - Son got a
girl & asked father's full until
to marry - no ~~dad~~ that
girl your sister, got all the
girls always no ~~[illegible]~~
was puzzled asked Mother
She said dont you mind
dats nigger he aint
you father

~~Fred Ott - Rothagome~~
~~Crape Rubber thrown~~
~~Callender Rolls~~
~~Hot & Cold see if~~
~~can get them~~

Cost Ediphone Cylinder

~~Wax~~	~~6 cents~~
~~Labor on wax~~	~~00½~~
~~Wax Liner~~	~~01½~~
~~Cartons~~	~~4 cents~~
~~Labor pkg~~	~~4 cents~~
~~Overhead~~	~~2~~
	~~18 cents~~

Weighs ½ lb.

45000 sold per month

think can save

5 cents on each or

$ 27000 yearly

Wax	.05of
Inker cloth	0073
Labor	0233
Carton	04
Pkg	017
Genl Exp	03
	17.6

Stearic 14½

Parafin 4½ to 5c

Discards 8/10 of

1%

based on 12c Stearic

Reg mix with 30 mesh
screen in Mill.
grinds 11 lbs per minute
90% to 91% thru 180
mesh

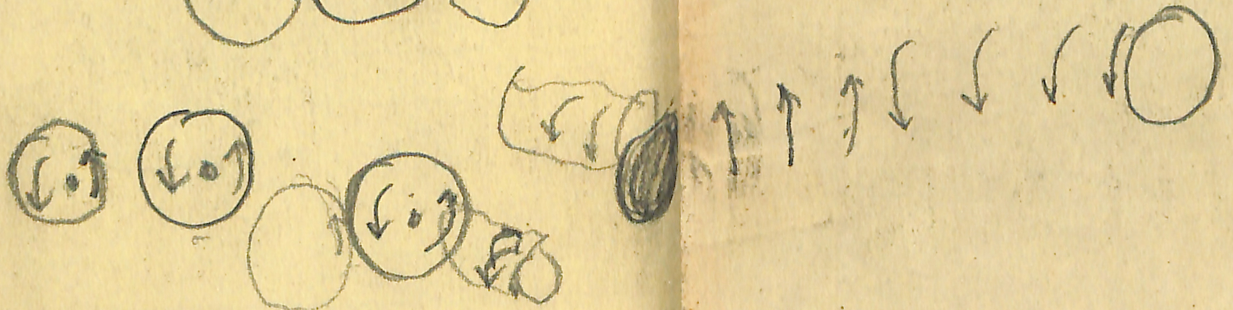
Dalleys with same
flour [illegible] & 30 mesh
only gives 5 lbs per
minute Thru 30 mesh
92% thru 180 mesh
in Water Cooled Mill

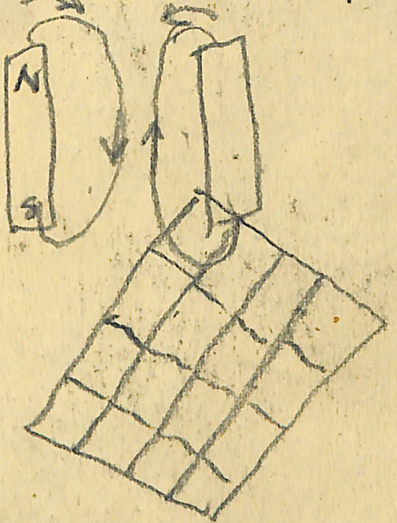
Dalleys blank is
9 parts Rosin 1 part
Bull Sht rather thick
so you can stick finger
in it
Using 10.8% Powder
for Dalley at 12%
of Reg Rosin for
Reg blank

This is 7200 lbs or
records for 24 hours
Hardly enough —

250) 1750 (7%
1750

170) 1280 (7.5
1190
890



12,000